

AMENDMENTS TO THE CLAIMS:

If entered, this listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A color imaging system for compensating a color response, the system comprising:
 - an array of pixel sensor elements;
 - a color filter including a plurality of color
 - 5 filter components organized in a predefined pattern, the color filter overlaying at least a portion of the array, wherein said pixel sensor elements include at least one element associated with a first color filter component, at least one element associated with a second color filter
 - 10 component, and at least one element associated with a third color filter component;
 - a first analog compensation unit coupled to at least one element associated with the first color filter component, said first analog compensation unit adapted to
 - 15 modify a readout of the at least one element associated with the first color filter component;
 - a second analog compensation unit coupled to the

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at least one element associated with the second color
filter component, and second analog compensation unit

20 adapted to modify a readout of the at least one element
associated with the second color filter component;

an analog summing amplifier coupled to two elements
associated with the third color filter component and
outputting an analog sum of said two elements;

25 a third analog compensation unit coupled to said
analog sum, said third analog compensation unit adapted to
modify a readout of said analog sum; and

an array controller adapted to control the readout of
the elements associated with the first, second and third
30 color components wherein said array controller directs said
readout of said first, second, and third color filter
components in a selected window of said array while other
sections of said array are not processed and wherein said
array controller simultaneously reads a 2x2 pixel block
35 from two adjacent columns and two adjacent rows of said
array. ~~wherein said array controller uses a programmable~~
~~digital pattern generator to determine said selected~~
window.

2. (Canceled)

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3. (Original) The system of Claim 1, wherein at least a portion of the array elements arranged in a plurality of rows and columns.

4. (Original) The system of Claim 1, wherein the array controller is adapted to control the readout of a plurality of pixel sensor elements in parallel.

5. (Canceled)

6. (Original) The system of Claim 1, wherein the analog compensation units are gain amplifiers.

7. (Original) The system of Claim 1, wherein the analog compensation units are programmable gain amplifiers.

8. (Original) The system of Claim 7, wherein the programmable gain amplifiers are implemented as a separate stage.

9. (Original) The system of Claim 7, wherein the programmable gain amplifiers are contained within a pixel circuitry of the array.

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10. (Original) The system of Claim 7, wherein the programmable gain amplifiers are within a plurality of column buffers.

11. (Canceled)

12. (Original) The system of Claim 1, wherein the color filter components include the colors of red, blue and green.

13. (Original) The system of Claim 1 wherein the array controller causes an independent readout for a set of even-numbered rows and an independent readout for a set of odd-numbered rows to control color compensation or each color component.

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14. (Original) The system of Claim 1, wherein the array controller causes an independent readout for even-numbered columns and an independent readout for odd-numbered columns to control color compensation of each color component.

15. (Original) The system of Claim 1, wherein the array

controller causes a plurality of substantially simultaneous, independent readouts for a plurality of rows and some columns.

16. (Original) The system of Claim 1, wherein the pixel sensor elements form a portion of a charged coupled device.

17. (Original) The system of Claim 1, wherein the pixel sensor elements form a portion of a complementary metal oxide semiconductor device.

18. (Original) The system of Claim 1, wherein at least a portion of the pixel sensor elements are active.

19. (Original) The system of Claim 1, wherein at least a portion of the pixel sensor elements are passive.

20. (Original) The system of Claim 1, wherein at least a first pixel sensor element is associated with a different color filter component than a second, neighboring pixel sensor element.

21. (Original) The system of Claim 1, wherein the predefined pattern is a Bayer color configuration.

22. (Original) The system of Claim 1, wherein the predefined pattern comprises the colors of yellow, cyan and magenta.

23. (Original) The system of Claim 1, further comprising a micro-lenses layer.

24. (Canceled)

25. (Canceled)

26. (Currently Amended) A method of compensating a color response in an analog domain of an array of pixel sensor elements, the method comprising:

amplifying an analog output from a plurality of
5 elements of a first color component;

amplifying an analog output from a plurality of
elements of a second color component wherein two said
element outputs are summed together prior to said
amplifying; and

10 generating a compensated analog readout of the
plurality of elements of the first color component wherein
only a selected window of said array is processed while

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other sections of said array are not processed and wherein
a 2x2 pixel block from two adjacent columns and two

15 adjacent rows of said array is simultaneously read. ~~wherein~~
~~said selected window is determined by a programmable~~
~~digital pattern generator.~~

27. (Canceled)

28. (Original) The method of Claim 26, wherein the act of
generating a compensated analog readout comprises
amplifying the analog readout for the plurality of elements
of the first color component with a first programmable gain
5 amplifier.

29. (Original) The method of Claim 26, further comprising
determining an optimal level of color compensation for the
analog readout of the plurality of elements of the first
color component.

30. (Original) The method of Claim 26, wherein generating a
compensated analog readout depends on a temperature of the
system.

31. (Original) The method of Claim 26, wherein the pixel

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sensor elements are associated with the colors of red, blue and green.

32. (Original) The method of Claim 31, wherein the array of pixel sensor elements is arranged in a plurality of rows and columns and the act of generating comprises:

generating an independent readout for even numbered
5 rows;

generating an independent readout for odd numbered rows;

generating an independent readout for even numbered columns; and

10 generating an independent readout for odd-numbered columns, such that at least one element associated with a red filter component is coupled to a first programmable gain amplifier, at least one element associated with a blue filter component is coupled to a second programmable gain
15 amplifier, and at least one element associated with a green filter component is coupled to a third programmable gain amplifier.

33. (Original) The method of Claim 26, wherein the act of

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generating comprises generating a plurality of substantially simultaneous, independent readouts for the set of rows and the set of columns.

34. (Canceled)

35. (Currently Amended) A color imager comprising:

a set of sensor elements, wherein at least one of said elements is associated with a first color, at least one of said elements is associated with a second color, and
5 at least two of said elements is associated with a third color;

a first amplifier configured to compensate for said first color;

a second amplifier configured to compensate for said
10 second color;

an analog summing amplifier coupled to said two elements associated with said third color and outputting an analog sum of said two elements;

a third amplifier configured to compensate for said
15 third color; and

an array controller which selectively couples elements associated with the first color to the first

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amplifier, said array controller selectively couples
elements associated with the second color to the
20 second amplifier, and said array controller selectively
couples elements associated with the first third color to
the third amplifier wherein said array controller directs
said readout of said first, second, and third color sensor
elements in a selected window of said array while other
25 sections of said array are not processed and wherein said
array controller simultaneously reads a 2x2 pixel block
from two adjacent columns and two adjacent rows of said
array. ~~wherein said array controller uses a programmable~~
~~digital pattern generator to determine said selected~~
30 ~~window.~~

36. (Original) The color imager of Claim 35, wherein the
sensor elements are arranged in rows and columns.

37. (Canceled)

38. (Canceled)

39. (Currently Amended) A method of interpolating a color
value in the analog domain in realtime, comprising:

modifying a first analog signal corresponding to the

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output of a first pixel element in an imager to color

5 correct the first pixel, the first pixel element used to sense light intensity of a first color; and

modifying a second analog signal corresponding to the output of a second and a third pixel element in the imager to color correct the second and third pixels, wherein the

10 second and third pixel elements are used to sense light intensity of a second color and wherein said second analog signal is a sum of said second and third pixel elements and wherein a 2x2 pixel block from two adjacent columns and two adjacent rows of said array is simultaneously read. ~~wherein~~

15 ~~only a selected window of said imager is processed while other regions of said imager are not processed wherein said selected window is determined by a programmable digital pattern generator.~~

40. (Original) The method as defined in Claim 39, further comprising modifying a third analog signal corresponding to the output of a third pixel element in the imager to color correct the third pixel.